

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/609,399	07/03/2000	Kohji Kameda	R2184.0078/P078	4329
24998	7590	09/08/2004	EXAMINER	
DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP 2101 L STREET NW WASHINGTON, DC 20037-1526			VU, TRISHA U	
			ART UNIT	PAPER NUMBER
			2112	
DATE MAILED: 09/08/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/609,399

Applicant(s)

KAMEDA, KOHJI

Examiner

Trisha U. Vu

Art Unit

2112

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07-03-00 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) [¶]
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-8 are presented for examination.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abramson et al. (6,131,135) (hereinafter Abramson) in view of Wunderlich et al. (6,065,122).

As to claim 1, Abramson teaches an arbitration method for operating a bus bridge (Bus Interface Unit 140 and USB arbiter 145) which interfaces a primary-side bus (PCI Bus 130) with a plurality of secondary side buses (buses from USB Host Controller 1 and USB Host Controller 2), the primary side bus being a local bus in a system and the secondary-side buses being external buses connected to the system (Fig. 1), the bus bridge supporting a plurality of kinds of operations one of which is an operation related to a serial bus in accordance with USB (Fig. 1), the arbitration method operating said bus bridge by giving an access right equally to each of the secondary-side buses (rotating arbitration), when access demands to the primary-side bus are lodged from more than two of the secondary-side buses at the same time, by not giving a priority to any one of the secondary-side buses, wherein access rights are provided sequentially to the more than

two secondary-side buses lodging access demands and at a same rate of the lodge access demands (col. 5 lines 16-34 and col. 6, claim 8). However, Abramson does not explicitly disclose one of bus operations is an operation in accordance with IEEE 1394.

Wunderlich teaches bus bridge which supports and controls a plurality of different types of buses including USB and IEEE 1394 bus operations (Figs 1-2 and col. 6, lines 34-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include IEEE 1394 bus as taught by Wunderlich in the system of Abramson because it provides high data transfer rate.

As to claim 3, Abramson as modified above further teaches giving a priority right to the serial bus in accordance with IEEE1394; and maintaining the access right given to the serial bus in accordance with IEEE1394 when an access demand is lodged from the secondary-side buses (USB) other than the serial bus in accordance with IEEE1394 (fixed arbitration scheme) (col. 5, lines 31-34).

As to claim 5, Abramson further teaches changing an order of giving the access right (col. 6, claim 8 wherein it is inherent in the rotating arbitration that the order of giving the access right is changed in each arbitration).

3. Claims 2, 4, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abramson et al. (6,131,135) (hereinafter Abramson) in view of Wunderlich et al. (6,065,122), and further in view of Tang et al. (6,298,370) (hereinafter Tang).

As to claim 2, the argument above for claim 1 applies. Abramson as modified by Wunderlich above further teaches that one of the secondary-side buses is the serial bus in

accordance with IEEE1394 (as addressed in claim 1), and there can be more than two secondary side buses (the arbiter can be configured to control two or more host controllers) (col. 5, lines 18-20). However, Abramson does not explicitly disclose the rest of the secondary-side buses are card buses. Tang teaches card-buses (col. 16, lines 1-16). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement card-buses as suggested by Tang for the rest of the secondary-side buses in the system of Abramson and Wunderlich because card bus is the preferred high-speed mobile interconnect bus which adds high-bandwidth capabilities to the PC Card technology and helps it match the system performance achieved by today's PCI bus-based mobile computers.

As to claim 4, Abramson as modified above further teaches performing a first arbitration operation between the serial bus and at least two of the card-buses when access demands are lodged from the serial bus and also from the at least two of the card buses (rotating arbitration); and performing a second arbitration operation between the at least two of the card buses when an access right is to be given to only one of the at least two of the card buses (rotating arbitration) (note col. 6, claim 8 and col. 2, lines 51-65).

As to claim 8, Abramson teaches an arbitration system, comprising: a bus bridge (Bus Interface Unit 140 and USB arbiter 145); a primary side bus (PCI Bus 130); and a plurality of secondary side buses (buses from USB Host Controller 1 and USB Host Controller 2) coupled to the primary side bus via said bus bridge (Fig. 1), wherein the bus bridge is configured to give access rights equally to each of the secondary side buses (rotating arbitration), when access demands to the primary side bus are lodged from more

than two of the secondary side buses at the same time, by not giving a priority to any one of the secondary side buses wherein access rights are provided sequentially to the more than two secondary-side buses lodging access demands and at a same rate of the lodged access demands (col. 5 lines 16-34 and col. 6, claim 8). However, Abramson does not explicitly disclose one of the secondary side buses is a serial bus in accordance with IEEE 1394 and the remaining secondary side buses are card buses. Wunderlich teaches bus bridge which supports and controls a plurality of different types of buses including USB and IEEE 1394 bus operations (Figs 1-2 and col. 6, lines 34-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include IEEE 1394 bus as taught by Wunderlich in the system of Abramson because it provides high data transfer rate. However, Abramson and Wunderlich do not explicitly disclose the rest of the secondary-side buses are card buses. Tang teaches card-buses (col. 16, lines 1-16). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement card-buses as taught by Tang for the rest of the secondary-side buses in the system of Abramson and Wunderlich because card bus is the preferred high-speed mobile interconnect bus which adds high-bandwidth capabilities to the PC Card technology and helps it match the system performance achieved by today's PCI bus-based mobile computers.

4. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abramson et al. (6,131,135) (hereinafter Abramson) in view of Wunderlich et al. (6,065,122), and further in view of Quackenbush et al. (6,163,824) (hereinafter Quackenbush).

As to claim 6, the argument above for claim 1 applies. However, Abramson and Glover do not explicitly disclose an arbitration scheme which gives a highest priority to the primary side bus when the primary-side bus lodges an access demand to the secondary-side buses irrespective of a condition of arbitration between the secondary side buses. Quackenbush discloses an arbitration scheme which assigns highest priority to a device (bridge 38 in processor side 16A) irrespective of a condition of arbitration between the other devices (controllers 42A-42H) (note col. 4. lines 42-56). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the arbitration scheme as suggested by Quackenbush to give a highest priority to the primary side bus irrespective of a condition of arbitration between the secondary side buses in the system of Abramson and Wunderlich to help minimize the access latency of the processor on the PCI local bus (note col. 4. lines 54-56).

As to claim 7, Abramson teaches an arbitration method of a bus bridge (Bus Interface Unit 140 and USB arbiter 145) which interfaces a primary-side bus (PCI Bus 130) with a plurality of secondary-side buses (buses from USB Host Controller 1 and USB Host Controller 2), the primary side bus being a local bus in a system and the secondary-side buses being external buses connected to the system (Fig. 1), the bus bridge supporting a plurality of kinds of operations one of which is an operation related to a serial bus in accordance with USB (Fig. 1). However, Abramson does not explicitly disclose at least one of the secondary-side buses being a serial bus in accordance with IEEE 1394 and the bus bridge supporting a plurality of kinds of operations one of which is an operation related to a serial bus in accordance with IEEE 1394. Wunderlich teaches

bus bridge which supports and controls a plurality of different types of buses including USB and IEEE 1394 bus operations (Figs 1-2 and col. 6, lines 34-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include IEEE 1394 bus as taught by Wunderlich in the system of Abramson because it provides high data transfer rate. However, Abramson and Wunderlich do not explicitly disclose an arbitration scheme which gives a highest priority to the primary-side bus when the primary-side bus lodges an access demand to the secondary-side buses irrespective of a condition of arbitration between the secondary side buses. Quackenbush discloses an arbitration scheme which assigns highest priority to a device (bridge 38 in processor side 16A) irrespective of a condition of arbitration between the other devices (controllers 42A-42H) (note col. 4, lines 42-56). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the arbitration scheme as suggested by Quackenbush to give a highest priority to the primary side bus irrespective of a condition of arbitration between the secondary side buses in the system of Abramson and Wunderlich to help minimize the access latency of the processor on the PCI local bus (note col. 4, lines 54-56).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trisha U. Vu whose telephone number is 703-305-5959. The examiner can normally be reached on Mon-Thur and alternate Fri from 7:00am to 4:30pm.

Art Unit: 2112

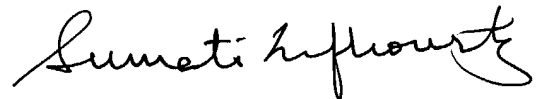
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on 703-305-4815. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Trisha U. Vu
Examiner
Art Unit 2112

uv



SUMATI LEEKOWITZ
PRIMARY EXAMINER